

## Isolation and properties of extracellular alkaline phosphatase from bacillus intermedius

Sharipova M., Balaban N., Mardanova A., Nekhotyaeva N., Dementyev A., Vershinina O., Garusov A., Leshchinskaya I.

*Kazan Federal University, 420008, Kremlevskaya 18, Kazan, Russia*

---

### Abstract

Alkaline phosphatase (APase) was isolated from the culture liquid of the streptomycin-resistant strain of *Bacillus intermedius* S3-19 and purified as a homogeneous preparation by ion-exchange chromatography and FPLC. Electrophoresis and gel-filtration revealed that the active enzyme is a monomer with molecular weight of 46-47 kD. The enzyme possessed phosphomonoesterase and phosphodiesterase activities with maximal levels at pH 9.5 and 55°C and was stable until 60°C at pH 8.0-10.0. The isolated APase exhibits a broad specificity towards a wide variety of substrates. The effect of divalent metal ions and other reagents on its catalytic activities was studied. It was concluded that alkaline phosphatase of *B. intermedius* is similar to the secreted alkaline phosphatases from other *Bacillus* species in its physicochemical and catalytic properties.

---